Creative Education
2013. Vol.4, No.1, 45-48
Published Online January 2013 in SciRes (http://www.scirp.org/journal/ce)
Scientific Research
DOI:10.4236/ce.2013.41007

Study of Effects of Drawing and Picture-Based Dental Care Education on Awareness of Five to Six-Year-Old Children in Ardabil Province Kindergartens

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Received August 5th, 2012; revised September 10th, 2012; accepted September 22nd, 2012

***Background and Objective*:** Dental and oral health education is an effective method in preventing dental caries. The objective of the current study was to assess the effects of drawing and picture-based dental and oral health education on awareness of five to six-year-old children in Ardabil province kindergartens. ***Methodology*:** Four hundred 5 to 6-year-old children were randomly selected from rural and urban kindergartens. First, a picture questionnaire was filled out by them as the pre-test. Then, before the main test, all children were educated by their trainers using pre-prepared booklet which had been designed as pictures and/or drawing. The education lasted for three months. Also, the parents pursued the training at home. One month after the education, the questionnaire was re-filled out as the post-test. Finally, the data were analyzed by SPSS. ***Findings*:** The mean post-test marks was significantly better than the pre-test marks regarding toothbrush and toothpaste, floss, sugar eating and bad habits. ***Conclusion*:** The results showed the importance of drawing and picture-based education by trainers in kindergartens and the pursuance of these activities by parents at home. It can be selected as an effective education method in kindergartens.

Keywords: Kindergarten; Dental and Oral Health

Introduction

One of the most prevailing causes of dental caries and gum inflammation is the ignorance of prevention methods of dental diseases and their disregard. Dental caries is a widespread dental disease. It is strongly influenced by habits and life styles among children, while it is almost completely preventable. There are reports showing that dental caries has led to even death in some cases which is a proof of the enormous gap between what we know about caries and its prevention and what we do about (David Satcher, 2009; Tibaboff & Reisine, 2009). The study of dental health status in Iran showed that the dmft of three-year-old Iranian children was 1.9 which increased to 5 by the age of six (Oral Health Office, 2004). The caries of the deciduous teeth tripled within three years which can be a risk factor in creating caries of permanent teeth. In addition, the outbreak of ECC among 2.5-year-old children increased by 24% during 1999-2004 which was brought about by inappropriate intake of sugars (Shojayizadeh, 2000; Woolley, 1980). The first stage in changing the behavior of children is to educate hygiene. Although the education does not suffice by itself for the prevention of dental caries but hygiene education makes the pivot of all prevention approaches and is necessary for changing destructive habits (Frites-Femandez et al., 2002).

It is obvious that one of our main tasks in preventing caries is to start prevention and education from childhood and the aim of health education is the change in the harmful behavior and the health education is more effective in creating of the positive health behavior (Harthorne & Carstens, 1989). Hartson reported that the implementation of school oral health education is effective to enhance the oral health level (Shabani, Hesari, & Hosseini, 2008). According to Fernandez, the level of oral health was improved after the oral health education program (Seyyed Akhavan & Amini, 2002). Various studies show that the children either are ignorant of correct dental and oral behaviors or seldom use toothbrush and fluoride-rich toothpastes. Hygiene education can considerably raise the awareness (Woolley, 1980). Regular examination by dentist, regular brushing by fluoride-rich toothpastes and flossing and eating less sugar are some positive behaviors and not using desirable fluoride-rich toothpastes, eating sugars, the occurrence of prior caries in child or his parents or other family members' mouth, leaving microbial plaque on tooth surface and not fissure sealant therapy of sensitive teeth are some factors can lead to dental caries (Shojayizadeh, 2000; Woolley, 1980; Firrozeh, 2003; Amini & Vanaki, 2003). Nowadays, drawing and picture are very effective education tools in making communication with the addressee (Birang, 2006). There many different education methods such as gaming, drawing, storytelling, computer games and picture interpretation, so that Amini used gaming method in educating tooth brushing (Yeganeh, 2006) and Birang used picture media method (Oral Health Office, 2004) and Yeganeh used speech and booklt methods in teaching hygiene (Mazloomi, 2009). Also, the ministry of health has used a set of active educations such as storytelling, gaming, field visiting, etc.

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in education dental and oral care for children at school level (Karimzadeh, 2001). Mazloomi used role model method (WHO technical report, 1984). The objective of the current study was to investigate the effects of drawing and picture-based health education on the knowledge of kindergarten children because it is critically important to find economical scientific methods in accordance with the affordability of health education responsible organizations which are effective in educating children and applicable at kindergarten level, too.

Methodology

It was an experimental after-before study which was conducted in 2009. The total number of selected samples was 400 people chosen from all kindergartens of the province including rural and urban, public and private, etc., so that it had a good distribution. After listing all kindergartens, the samples size was randomly selected from the list. The data were gathered by pictorial questionnaire which included awareness questions whose reliability was ensured by alpha cronbach's coefficient of .8. During the test, first the questions were clearly described by kindergarten trainer without pointing to the answer.

Then, the children colored the correct choices green and the harmful choices red. The choices were marked by colorful pencils. Afterwards, the children were actively educated by children workbooks, which included drawing and pictorial activities for one month. The trainers of the kindergartens were responsible for educating them. The trainers themselves had been educated in a workshop how to educate the workbooks.

Two weeks after the end of the course, the questionnaires were re-used and the same questionnaire was filled in accor dance with samples size .The marks of awareness were analyzed by the software SPSS and their means were gained by paired t-test.

Findings

In the study, the average age of the children was 4.5 years. After the educations, the mean mark of toothbrush and toothpaste advantages increased from .87 to .91 and the mean mark of flossing increased from .86 to .97. Another increase was in the mark of sugar eating and its harms to teeth which increased from .84 to .87. Moreover, the mark of determining incorrect and harming habits to teeth increased from .81 to .93. Regarding regular examination by dentists, the mean mark was .85 after the test while it was .74 before the test (**Table 1**).

There was a significant relation between mean marks before and after test regarding the awareness about toothbrush and toothpaste, harmful habits, regular examination by dentist and flossing. As it has been shown in **Table 2** the mean marks of sugar eating increased after the educations ($P = .00$).

Discussion

The results showed that active education of children by drawing and picture was effective in enhancing their knowledge about dental and oral hygiene, so that they were able to significantly enhance the awareness about toothbrush and toothpaste ($P < .001$), flossing ($P < .001$), incorrect and harmful habits ($P < .001$) and regular examination by dentist ($P < .001$). In the case of sugar eating, there was a significant increase in awareness, too. In a study on the effects of education by two speech and booklet methods on increasing the awareness about break

Table 1.
Distribution of frequency of correct and incorrect answers and mean mark of awareness relative to dental and oral health before and after drawing and picture-based education in 5 to 6-year-old children in Ardabil kindergartens.

Question	Before education				After education			
Color the items good for teeth blue and the ones bad for teeth in red	Correct answers	Incorrect answers	Total	Mean awareness mark	Correct answers	Incorrect answers	Total	Mean awareness mark
	310	90	400	.78 (±.41)	384	16	400	.96 (±.19)
	194	206	400	.47 (±.5)	374	26	400	.94 (±.24)
	259	105	400	.74 (±.44)	388	12	400	.97 (±.17)
	158	242	400	.4 (±.45)	362	37	400	.9 (±.3)

Table 2.
Means comparison for awareness marks of dental and oral health before and after education of children (5 to 6-year-old children).

Question	Before education Means	After education Means	Means difference	Confidence interval .95	T	df	Significance level
	.78 (±.41)	.96 (±.19)	.18 (±.28)	.14 − .22	9	399	$P < .001$
	.47 (±.5)	.94 (±.24)	.45 (±.49)	.4 − .49	18	399	$P < .001$
	.74 (±.44)	.97 (±.17)	.23 (±.42)	.19 −.27	10.9	399	$P < .001$
	.4 (±.45)	.9 (±.3)	.5 (±.5)	.46 − .55	20	399	$P < .001$

fast eating among children, Yeganeh showed that although speech was better in enhancing the awareness (Mazloomi, 2009), there was no significant difference between these two methods. However, they recommended education by booklet because of its simplicity. This method is economical too because in speech direct education of individual child is difficult. Kreisel (2003) studied the effectiveness of education by a computer training package among nine and ten-year-old children and showed that it was significant in increasing children's awareness but it was not significant regarding the performance (Kreisel, 2003). Birang indicated that education by film as a pictorial media increased the awareness and performance about dental and oral health among students (Birang, 2006). In a study on the effects of education with two game and role playing methods on the awareness of 5 and 6-year-old children, Ahmadi showed that game playing and drawing method was significant better than role playing method in increasing children's awareness about recognizing food pyramid which is consistent with the findings of the current study (Amini & Vanaki, 2003).

Considering the positive effects of education, it could be said that actively educating children by drawing and picture is effective in increasing their awareness about dental and oral hygiene. According to the alma-ata conference, the education concerning prevailing health problems and the method of identifying, preventing, and controlling them as the first of the eight recommended activities making up primary health care (WHO, 1984) .This comment elucidate the role of the health education as a primary measurement in the health care management. Despite the increase in the number of dentists and equipping dental centers, many countries were not able to overcome dental caries because it is almost a behavioral problem associated with the ignorance and disregard of positive behaviors by people (Dye et al., 2007). Mazloomi (2009) and Karimzadeh (2001) showed that role-playing and child-to-child education methods were effective in enhancing children's health awareness, respectively. Smiech (2007) recommends health education and appropriate food regime as the measures for controlling dental caries.

Conclusion

Considering that drawing and picture-based education is a simple method and are more practical under the supervision of trainers or parents, it is better to use this method in other dental and oral care fields such as motivation and performance fields. Also, it is recommended to study this method in other fields of hygiene on children.

Acknowledgements

The authors appreciate the officials of Ardabil Welfare Office and all principals and teachers of kindergartens for their kind cooperation.

REFERENCES

Amini, R., & Vanaki, Z. (2003). Study of the extent of the effects of oral health game education on dental and oral health status among students in Isfahan, Iran. *Journal of Dentistry College, Isfahan, 15,* 24-38.

Birang, S., et al. (2006). *Study of effects of picture education method on enhancing dental and oral health among students* (Vol. 9, pp. 1-6). Isfahan: Dentistry College.

David Satcher (2009). Childrens oral health. The time for change is now. *Academic Pediatrics, 9,* 380-382.

Dye, B. A., Tan, S., Smith, V., Lewis, B. G., Barker, L. K., Thornton-Evans, G. et al. (2007). Trends in oral health status: United States, 1988-1994 and 1999-2004. *National Center for Health Statistics, Vital Health Stat, 11,* 1-92.

Firrozeh, M. (2003). *Picture language* (Vol. 4, pp. 16-58,109). Tehran: Soroosh Press.

Frites-Femandez, L. B., Noraes Junior, A. B., & Fertasa, A. C. (2002). Effectiveness of an oral hygiene program for brazillian orphoenag. *Brazilian Dental Journal, 13,* 44-48.

Harthorne, J. E., & Carstens, I. L. (1989). The effective of a school-

based oral health education program—A pilot study. *The Journal of the Dental Association of South Africa, 44,* 5-10.

Karimzadeh, F. (2001). Child to child approach. *Yasooj University for Medical Science, 18,* 28-33.

Katrin, K. (2003). Evaluation of a computer-based nutrition education tool. *Public Health Nutrition, 7,* 271–277.

Mazloomi, M. (2009). Study of effects of the role modeling on enhancing of oral health knowledge. *Journal of Islamic Dentist, 1,*137-147.

Oral Health Office (2004). *Health education in kindergarden* (pp. 4-47). Tehran: Ministry of Health and Medical Education.

Seyyed Akhavan, P., & Amini, N. (2002). *Modern prevention methods in dentistry and estimation of risk of dental and oral diseases* (pp. 37-51). Tehran: Teymoorzadeh Press.

Shabani, M., Hesari, H., & Hosseini, S. (2008). *Sealant therapy without trauma. Jame'e Negar* (pp. 135-138). Esfahan: Baghe Rezvan Press.

Shojaeizadeh, S. (2000). *Study models of behavior in health education. Health Education and Communication Office* (3rd ed., pp. 201-232). Tehran: Ministry of Health and Medical Education.

Smiech, S., et al. (2007). The effect of oral health education on dental plaque development and the level of caries-related *Streptococcus mutans* and *lactobacillus* spp. *European Journal of Orthodontics, 29,* 157-160. doi:10.1093/ejo/cjm001

Tibaboff, N., & Reisine, S., (2009). Update on early childhood caries since the Surgeon General's Report. *Academic Pediatrics, 9,* 396-403.

WHO Technical Report Srries No. 713 (1984). *Prenention methods and programmes for oral disease* (pp. 24-25). Geneva: WHO Expert Committee.

Yeganeh, M., et al. (2006). Comparison of the effects of two breakfast nutrition educating methods on the performance of the students of four schools in Tehran, Iran. *Journal of Health and Health Research, 4,* 65-67.